

REMARKS

Prior to entry of this amendment, claims 1, 3, 5, 9, 12, 15, 18, 22 and 36-46 have been submitted for consideration by the Examiner. Each of the aforementioned claims are currently rejected. Claims 1, 5, 15, 22, 36-40 and 45-46 are amended herein. Claim 2-4, 6-14, 16-21 and 23-35 are cancelled. Claims 47-50 are newly presented. The remaining independent claims include claims 1, 36-39 and 45. After entry of this amendment, claims 1, 5, 15, 22 and 36-50 will be pending.

Claims Rejections Under 35 U.S.C. § 101

Claims 1, 3, 5, 9, 12, 15, 18 and 22 remain rejected under 35 U.S.C. § 101 because the Examiner considers a “data structure” in claim 1 to be non-functional, descriptive material. In addition to the arguments previously presented on this issue, Applicants respectfully traverse this rejection for at least the reasons presented herein below.

Claims 1, 3, 5, 9, 12, 15, 18 and 22 stand rejected under 35 U.S.C. § 101 because the claimed invention is allegedly directed to non-statutory subject matter. In particular, the Examiner asserts that the features of claims 1, 3, 5, 9, 12, 15, 18 and 22, prior to the amendments shown in the preceding section, did not impart functionality to a computer or computing device and thus, merely amount to **non-functional** descriptive material. Claims 3, 9, 12 and 18 have been cancelled thus rendering the Section 101 rejection moot with respect to these claims. As explained further below, claims 1, 5, 15 and 22 are directed toward **functional** descriptive material.

“Functional descriptive material” consists of **data structures** and computer programs which impart functionality when employed as a computer component. (The definition of “data structure” is “a physical or logical relationship among data elements, designed to support specific

data manipulation functions.” The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) “Nonfunctional descriptive material” includes but is not limited music, literary works and a compilation or mere arrangement of data.

Applicants submit that data structures recorded on a computer-readable medium, as reflected in the rejected claims, constitute statutory subject matter.

As explained in MPEP § 2106.01, data structures not claimed as embodied in computer-readable medium are "descriptive material" and are nonstatutory because they are not capable of causing functional change in the computer, [In re Warmerdam,] 33 F.3d at 1360, 31 USPQ2d at 1759. However, when functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (discussing patentable weight of data structure limitations in the context of a statutory claim to a data structure stored on a computer readable medium that increases computer efficiency) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory).

In view of the above, a more detailed discussion of In re Lowry is warranted.

Claim 1 of In re Lowry recited:

1. A memory for storing data for access by an application program being executed on a data processing system, comprising:

a data structure stored in said memory, said data structure including information resident in a database used by said application program and including; (emphasis added)

a plurality of attribute data objects stored in said memory, each of said attribute data objects containing different information from

said database;

a single holder attribute data object for each of said attribute data objects, each of said holder attribute data objects being one of said plurality of attribute data objects, a being-held relationship existing between each attribute data object and its holder attribute data object, and each of said attribute data objects having a being-held relationship with only a single other attribute data object, thereby establishing a hierarchy of said plurality of attribute data objects;

a referent attribute data object for at least one of said attribute data objects, said referent attribute data object being nonhierarchically related to a holder attribute data object for the same at least one of said attribute data objects and also being one of said plurality of attribute data objects, attribute data objects for which there exist only holder attribute data objects being called element data objects, and attribute data objects for which there also exist referent attribute data objects being called relation data objects; and

an apex data object stored in said memory and having no being-held relationship with any of said attribute data objects, however, at least one of said attribute data objects having a being-held relationship with said apex data object.

In finding that the printed matter cases have no factual relevance to the claims at issue in

In re Lowry, the court stated:

Nor are the data structures analogous to printed matter. Lowry's ADOs do not represent merely underlying data in a database. ADOs contain both information used by application programs and information regarding their physical interrelationships within a memory. Lowry's claims dictate how application programs manage information. Thus, Lowry's claims define functional characteristics of the memory.

In re Lowry, at 1034.

The court further noted:

Indeed, Lowry does not seek to patent the Attributive data model in the abstract. Nor does he seek to patent the content of information resident in a database. **Rather, Lowry's data structures impose a physical organization on the data.** (emphasis added)

In re Lowry, at 1034.

And, on the issue of abstract ideas, the Federal Circuit in In re Lowry noted:

More than mere abstraction, the data structures are specific electrical or magnetic structural elements in a memory. According to Lowry, **the data structures provide tangible benefits: data stored in accordance with the claimed data structures are more easily accessed, stored, and erased.** Lowry further notes that, unlike prior art data structures, Lowry's data structures simultaneously represent complex data accurately and enable powerful nested operations. **In short, Lowry's data structures are physical entities that provide increased efficiency in computer operation.** (emphasis added)

In re Lowry, at 1035.

The claims at issue (e.g., claim 1) are analogous to the claims in In re Lowry, and as such are clearly statutory subject matter. Unlike the claims of In re Warmerdam, the claims of the subject application do not recite mathematical equations, nor the generation of data structures using mathematical equations. Instead, as in In re Lowry, claim 1 recites a computer readable medium storing a specific data structure that dictates how video data is recorded on the computer-readable medium for managing real-time reproduction of the data. Applying the language of MPEP § 2106.01 regarding **functional** descriptive material, claim 1 is directed to a claimed computer-readable medium storing a data structure defining structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. This is also true with regard to claims 5, 15 and 22.

In light of the above, Applicants respectfully request that the rejection of amended independent claim 1, and claims 5, 15 and 22 depending therefrom, under 35 U.S.C. § 101 be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 3, 5, 9, 15, 18, 22 and 36-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takao (US 7,000,246 B1) and further in view of Kikuchi et al. (US 5,870,523). Applicants respectfully traverse this rejection as it may apply to the remaining pending claims.

Independent claim 1 recites a computer readable recording medium having, among other things,

- at least one navigation area for storing navigation management information for managing real-time reproduction of multiple reproduction path video data recorded on the recording medium; and

- wherein at least one navigation unit comprises a plurality of video data packets and a plurality of real-time navigation packets, and

- wherein the plurality of real-time navigation packets comprises a real-time navigation table, the real-time navigation table including real-time navigation data, the real-time navigation data including a plurality of real-time playback information and an indication information for indicating the number of real-time playback information within the navigation unit, and

- wherein each real-time navigation packet has a same packet identification code that is different from that of each of said plurality of video packets.

Independent claim 36 recites a method of recording a data structure for managing reproduction of real-time navigation video data on a recording medium having a similar navigation unit as recited in claim 1 with a plurality of video packets and real-time navigation packets wherein the plurality of real-time navigation packets comprises a real-time navigation table with constituent elements.

Independent claim 37 is directed to a method of reproducing a data structure for managing real-time navigation video data recorded on a recording medium having similar limitations to those of claims 1 and 36.

Claim 38 is directed to an apparatus for recording a data structure for managing reproduction of at least real-time navigation video data on a recording medium having, among

other things, a controller to control the driver to record a plurality of real-time navigation packets in the at least one navigation unit where the navigation packets are organized in a real-time navigation table having a similar structure to that disclosed in previous independent claims 1, 36 and 37.

Independent claim 39 is directed to an apparatus for recording a data structure for managing reproduction of real-time data on a recording medium having, among other things, a controller configured to control a driver for reproducing navigation management information where the controller is configured to control a driver for reproducing a plurality of video packets recorded on the recording medium using a plurality of real-time navigation packets contained within the at least one navigation unit having the real-time navigation packets include a real-time navigation table organized similar to the other previously discussed independent claims.

Independent claim 45 is directed to an apparatus for recording a data structure for managing reproduction of at least real-time navigation video data recorded on a recording medium. Claim 45 includes, among other things, a controller configured to control the optical reproducing device to produce a plurality of real-time navigation packets and to produce a plurality of video packets where the plurality of real-time navigation packets includes a real-time navigation table having a structure similar to that recited in the other independent claims currently rejected under Section 103.

Applicants respectfully assert that the Takao reference does not teach nor suggest any of the apparatus or methods recited in independent claims 1, 36, 37, 38, 39 and 45, as amended, either alone or in combination with Kikuchi et al.

As acknowledged by the Examiner, Takao fails to teach multiple reproduction path video data. To cure this deficiency in the primary reference, the Examiner relies upon Kikuchi et al. as teaching multiple reproduction path video data citing to Figure 34, column 20, lines 35-65.

However, Kikuchi et al. is incapable of curing the deficiencies in the primary reference.

It is the Examiner's position that since Kikuchi et al. teaches multiple reproduction path video data, it would be obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teaching of Kikuchi et al. into the teaching of Takao for easy playback. Applicants submit that it is well settled that rejections on obviousness grounds can not be sustained by mere conclusory statements. Instead, there must be some articulated reason with some rational underpinning to support the legal conclusion of obviousness. In this case, the Examiner fails to set forth any rationale to support the conclusion that Kikuchi et al. would be properly combined with Takao for managing real-time navigation of multiple reproduction path video data. However, there is no rationale provided by the Examiner to support the conclusion that one of ordinary skill would seek to combine Takao with Kikuchi et al.

Even assuming that Kikuchi et al. could be properly combined with the primary reference, there is still no teaching in the secondary reference of a real-time navigation table having the constituent elements as recited in independent claim 1.

Since the other independent claims currently rejected have similar amendments to include a real-time navigation table with the same constituent elements, Applicants also submit that the Examiner has failed to show that these claims are anticipated or obvious for similar reasons to those expressed above with regard to claim 1.

Because each of the independent claims has been shown to be patentable for at least the reasons cited above, the Applicants submit that those claims respectively dependent, either directly or indirectly, on an independent claim having similar limitations are patentable at least by reason of their dependency. Therefore, the Applicants respectfully request that the rejections under 35 U.S.C. § 103(a) based on the combination of Takao with Kikuchi et al. be removed and the pending claims be allowed.

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Takao (US 7,000,246 B1) and Kikuchi et al. (US 5,870,523) as applied to claims 1, 3, 5, 9, 15, 18, 22, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45 above, and further in view of Shimoji et al. (US 2004/0,088,739 A1). While claim 12 is cancelled by this amendment, Applicants address the combination of references as they may apply to the remaining claims.

The Examiner cites to Shimoji et al. as teaching at least one real-time navigation table for storing a plurality of real-time navigation packets each having the same packet identification code to conclude that it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shimoji et al. into the teaching of Takao for “user easily to organize the broadcasting information since Shimoji et al. suggest in paragraph [0005] to all user to interactively select image information in accordance with the content of the image information received.”

First, Applicants have demonstrated that the Examiner has failed to set forth a sufficient rationale for the combination of Takao and Kikuchi et al. However, the Examiner recognizes that neither of these references, either alone or in combination, teach at least one real-time navigation table for storing a plurality of real-time navigation packets each having the same packet identification code. Applicants submit that Shimoji is incapable of curing the deficiencies in the combination of Takao with Kikuchi et al. for at least the following reasons.

As recited, for example, in claim 1, the real-time navigation table includes real-time navigation data, where the real-time navigation data has a plurality of real-time playback information and an indication formation for indicating the number of real-time playback information within the navigation unit.

Shimoji et al. fails to teach a navigation unit having a plurality of RTM packets and AV packets similar to that described in claim 1. Further, there is no discussion that Shimoji et al. is

directed to a system for multiple reproduction path video data also as described in claim 1. Additionally, the constituent elements of the real-time navigation table as recited in claim 1 do not correspond to those appearing in Figure 28A as the constituent elements of data stream 7405-7408. In particular, for example, there is no corresponding information that indicates the number of real-time playback information within the navigation unit.

As such, Applicants submit that the combination of references suggested by the Examiner does not render claim 12 obvious nor any of the currently presented claims.

Claim 46 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Takao (US 7,000,246 B1) and Kikuchi et al. (US 5,870,523) as applied to claims 1, 3, 5, 9, 15, 18, 22, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45 above, and further in view of Watanabe (US 7,103,268 B2).

Because claim 46 depends from independent claim 36 and since claim 36 has been shown to be patentable for at least the reasons set forth above, the Applicants respectfully assert that these claims are patentable for at least by reason of their dependency upon claim 36. Therefore, the Applicants respectfully request that the rejections under 35 U.S.C. § 103(a) be removed and the pending claim be allowed.

Furthermore, Applicants do not need to address what, if anything, Watanabe may teach regarding the physical alignment with the corresponding physical unit of a recording medium since such language has been deleted from claim 46.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of claims 1, 5, 15, 22 and 36-50 in connection with the present application is earnestly solicited.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants hereby petition for a three (3) month extension of time for filing a reply to the outstanding Office Action and submit the required \$1,050.00 extension fee herewith.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKY, & PIERCE, P.L.C.

By:



Terry L. Clark, Reg. No. 32,644
P.O. Box 8910
Reston, Virginia 20195
(703) 668-8000

TLC/dab